ABSTRACT OF THE DISCLOSURE

An apparatus for ion attachment mass spectrometry provided with a reaction chamber for causing positively charged metal ions to attach to a gas to be detected; a mass spectrometer for mass separation and detection of the detection gas; an analysis chamber in which the mass spectrometer is placed; differential evacuation chambers for connecting the reaction chamber and analysis chamber; a data processor for receiving and processing the mass signal from the mass spectrometer; and vacuum gauges for measuring the total pressure of the reduced pressure atmosphere of the reduced pressure atmosphere reaction chamber, a differential evacuation chamber, and an analysis chamber. The total pressure signal from the vacuum gauge measured during the measurement is input to one of the data processor, introduction mechanism, and evacuation mechanism. The data processor has a processing means for performing quantitative analysis of each component utilizing the fact that sensitivity of each component has dependency on the total pressure of the reduced pressure atmosphere and that the dependency on total pressure differs for each component.